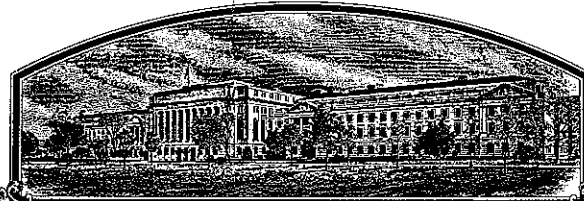


No.

9600037



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

## Minnesota Agricultural Experiment Station

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR PRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR USING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE VARIETY (STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.).

SOYBEAN

'Freeborn'

*In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirty-first day of December in the year of our Lord one thousand nine hundred and ninety-six.*

Attest:

*Marsha A. Hunter*  
Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

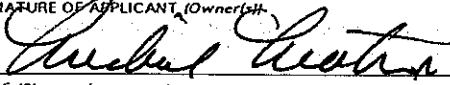
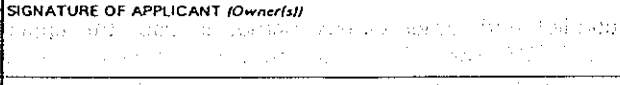
*Philomena*  
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE DIVISION - PLANT VARIETY PROTECTION OFFICE

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a).

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

**APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE**  
(Instructions and information collection burden statement on reverse)

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) Minnesota Agricultural Experiment Station		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER M87-1621	3. VARIETY NAME Freeborn
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) University of Minnesota 220 Coffey Hall 1420 Eckles Avenue St. Paul, MN 55108		5. TELEPHONE (include area code) 612-625-4211	<b>FOR OFFICIAL USE ONLY</b> PVPO NUMBER 4200037 DATE NOVEMBER 6, 1995 FILING AND EXAMINATION FEE 11/6/95 & 12/6/95 CERTIFICATION FEE 300.00 DATE Dec 7, 1996
6. FAX (include area code) 612-625-0286			
7. GENUS AND SPECIES NAME Glycine max	8. FAMILY NAME (Botanical) Leguminosae		
9. CROP KIND NAME (Common name) Soybean			
10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) (Common name) State Agricultural Experiment Station			
11. IF INCORPORATED, GIVE STATE OF INCORPORATION		12. DATE OF INCORPORATION	
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS J.H. Orf Department of Agronomy and Plant Genetics, 411 Borlaug Hall University of Minnesota 1991 Upper Buford Circle St. Paul, MN 55108			14. TELEPHONE (include area code) 612-625-8275
			15. FAX (include area code) 612-625-1268
16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)			
a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of the Variety d. <input type="checkbox"/> Exhibit D. Additional Description of the Variety e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Applicant's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,600 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in a public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$2,450), made payable to "Treasurer of the United States" (Mail to PVPO)			
17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? (See Section 83(e) of the Plant Variety Protection Act) <input checked="" type="checkbox"/> YES If "yes," answer items 18 and 19 below <input type="checkbox"/> NO If "no," go to item 20			
18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? <input checked="" type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED 3 generations 9811 Dec. 1996	
20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES? <input type="checkbox"/> YES If "yes," give names of countries and dates <input checked="" type="checkbox"/> NO			
21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.			
SIGNATURE OF APPLICANT (Owner(s)) 		SIGNATURE OF APPLICANT (Owner(s)) 	
NAME (Please print or type) Michael V. Martin		NAME (Please print or type) Michael V. Martin	
CAPACITY OR TITLE Dean	DATE 11-20-95	CAPACITY OR TITLE	DATE

## Exhibit A

## Origin and Breeding History of Freeborn Soybean

'Freeborn' soybean traces to the F<sub>6</sub> progeny of an F<sub>5</sub> plant that had been evaluated for race 3 soybean cyst nematode resistance in the greenhouse. The F<sub>5</sub> plant was from a population that had been harvested as an F<sub>4</sub> plant row. The F<sub>4</sub> plant row was from an F<sub>3</sub> plant that had been advanced by a modified single seed descent procedure from the cross Ozzie x Fayette. Bulk seed of the F<sub>6</sub> row was designated M87-1621 and was yield tested in the F<sub>7</sub> (1988). Subsequent tests of strain M87-1621 were conducted in Minnesota in the F<sub>8</sub> (1989) and F<sub>9</sub> (1990). In the F<sub>9</sub> generation 50 typical plants were harvested individually to initiate purification for observable traits including reaction to race 1 of phytophthora root rot and race 3 of soybean cyst nematode. In the F<sub>9</sub> (1990) M87-1621 was entered into the Maturity Group I Northern Regional Soybean Cyst Nematode Test. In 1991 (F<sub>10</sub>) twenty-nine rows were grown for purification purposes. Nine rows appeared uniform for plant and seed characters including reaction to race 1 of phytophthora root rot and race 3 of soybean cyst nematode, therefore seed of these rows were bulked to provide breeder's seed. In the F<sub>10</sub> (1991), F<sub>11</sub> (1992), F<sub>12</sub> (1993) and F<sub>13</sub> (1994) M87-1621 continued to be tested in the Northern Regional Soybean Cyst Nematode Test. M87-1621 was entered into the Maturity Group I Uniform Regional Soybean Test in the F<sub>11</sub> (1992), F<sub>12</sub> (1993) and F<sub>13</sub> (1994). In the F<sub>11</sub> (1992) a small increase of breeders seed was made. In the F<sub>12</sub> (1993) Foundation seed was produced by the Minnesota Foundation Seed Organization. In the F<sub>13</sub> (1994) seed was increased and approved for released as Freeborn. On February 15, 1995 seed of Freeborn was released to growers in Minnesota. No off type variants were noted in the seed multiplication process of Freeborn over three generations. This variety breeds true and meets certification standards.

## Exhibit B

## Novelty Statement

'Freeborn' soybean is most similar to 'Faribault' soybean. Freeborn is approximately one day earlier than Faribault. The yield of Freeborn is similar to the yield of Faribault. Freeborn is about one inch shorter than Faribault. Seed of Freeborn is about 4.1 grams per 100 seeds larger than Faribault. Freeborn has about 1.8 percent higher protein and 0.2 percent lower oil than Faribault. Freeborn has tawny pubescence while Faribault has gray pubescence. Seed of Freeborn has black hila while seed of Faribault has buff hila. The source of soybean cyst nematode resistance in Freeborn is PI 88788 while the source of soybean cyst nematode resistance in Faribault is PI 209332.

Data comparing Freeborn and Faribault is taken from the Uniform Test I, Northern States 1992-1993 (a total of 19 tests for most traits).

Variety	Date mature	Yield bu/a	Height inches	Lodging score	Seed Quality score	Seed Size g/100	Protein %	Oil %
Freeborn	9/24	41.7	29	1.5	1.7	18.0	40.7	19.8
Faribault	9/25	41.2	30	1.9	1.8	13.9	38.9	20.0

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
~~LIVESTOCK, MEAT, GRAIN & SEED DIVISION~~  
PLANT VARIETY PROTECTION OFFICE  
BELTSVILLE, MARYLAND 20705

EXHIBIT C  
(Soybean)

OBJECTIVE DESCRIPTION OF VARIETY  
SOYBEAN (*Glycine max* L.)

NAME OF APPLICANT(S) Minnesota Agricultural Experiment Station	TEMPORARY DESIGNATION M87-1621	VARIETY NAME Freeborn
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) University of Minnesota 220 Coffey Hall, 1420 Eckles Avenue St. Paul, MN 55108		FOR OFFICIAL USE ONLY PVPO NUMBER 9600037

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g.,   ). Starred characters ★ are considered fundamental to an adequate soybean variety description. Other characters should be described when information is available.

1. SEED SHAPE:



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)  
3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)

2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)  
4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

★ 2. SEED COAT COLOR: (Mature Seed)

1 = Yellow      2 = Green      3 = Brown      4 = Black      5 = Other (Specify) \_\_\_\_\_

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

1 = Dull ('Corsoy 79'; 'Braxton')      2 = Shiny ('Nebsoy'; 'Gasoy 17')

★ 4. SEED SIZE: (Mature Seed)

Grams per 100 seeds

★ 5. HILUM COLOR: (Mature Seed)

1 = Buff      2 = Yellow      3 = Brown      4 = Gray      5 = Imperfect Black      6 = Black      7 = Other (Specify) \_\_\_\_\_

★ 6. COTYLEDON COLOR: (Mature Seed)

1 = Yellow      2 = Green

★ 7. SEED PROTEIN PEROXIDASE ACTIVITY:

1 = Low      2 = High

★ 8. SEED PROTEIN ELECTROPHORETIC BAND:

1 = Type A (SP1<sup>a</sup>)      2 = Type B (SP1<sup>b</sup>)

★ 9. HYPOCOTYL COLOR:

1 = Green only ('Evans'; 'Davis')      2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')  
3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')  
4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

★ 10. LEAFLET SHAPE:

1 = Lanceolate      2 = Oval      3 = Ovate      4 = Other (Specify) \_\_\_\_\_

## 11. LEAFLET SIZE:

☐ 21 = Small ('Amsoy 71'; 'A5312')  
3 = Large ('Crawford'; 'Tracy')

2 = Medium ('Corsoy 79'; 'Gasoy 17')

## 12. LEAF COLOR:

☐ 21 = Light Green ('Weber'; 'York')  
3 = Dark Green ('Gnome'; 'Tracy')

2 = Medium Green ('Corsoy 79'; 'Braxton')

## ★ 13. FLOWER COLOR:

☐ 1

1 = White

2 = Purple

3 = White with purple throat

## ★ 14. POD COLOR:

☐ 2

1 = Tan

2 = Brown

3 = Black

## ★ 15. PLANT PUBESCENCE COLOR:

☐ 2

1 = Gray

2 = Brown (Tawny)

## 16. PLANT TYPES:

☐ 21 = Slender ('Essex'; 'Amsoy 71')  
3 = Bushy ('Gnome'; 'Govan')

2 = Intermediate ('Amcor'; 'Braxton')

## ★ 17. PLANT HABIT:

☐ 3

1 = Determinate ('Gnome'; 'Braxton')

2 = Semi-Determinate ('Will')

3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

## ★ 18. MATURITY GROUP:

☐ 0 ☐ 41 = 000  
9 = VI2 = 00  
10 = VII3 = 0  
11 = VIII4 = I  
12 = IX5 = II  
13 = X

6 = III

7 = IV

8 = V

## ★ 19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

## BACTERIAL DISEASES:

★

☐ 0Bacterial Pustule (*Xanthomonas phaseoli* var. *sojensis*)

★

☐ 0Bacterial Blight (*Pseudomonas glycinea*)

★

☐ 0Wildfire (*Pseudomonas tabaci*)

## FUNGAL DISEASES:

★

☐ 0Brown Spot (*Septoria glycines*)Frogeye Leaf Spot (*Cercospora sojina*)

★

☐ 0

Race 1

☐ Race 2☐ Race 3☐ Race 4☐ Race 5☐ Other (Specify)☐ 0Target Spot (*Corynespora cassiicola*)☐ 0Downy Mildew (*Peronospora trifoliorum* var. *manshurica*)☐ 0Powdery Mildew (*Microspora diffusa*)

★

☐ 2Brown Stem Rot (*Cephalosporium gregatum*)☐ 0Stem Canker (*Diaporthe phaseolorum* var. *caulivora*)

## 19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

## FUNGAL DISEASES: (Continued)

- ★ ☐ 1 Pod and Stem Blight (*Diaporthe phaseolorum* var. *sojae*)
- ☐ 0 Purple Seed Stain (*Cercospora kikuchii*)
- ☐ 0 Rhizoctonia Root Rot (*Rhizoctonia solani*)
- Phytophthora Rot (*Phytophthora megasperma* var. *sojae*)
- ★ ☐ 2 Race 1 ☐ 0 Race 2 ☐ 1 Race 3 ☐ 0 Race 4 ☐ 0 Race 5 ☐ 0 Race 6 ☐ 0 Race 7
- ☐ 0 Race 8 ☐ 0 Race 9 ☐ Other (Specify) \_\_\_\_\_

## VIRAL DISEASES:

- ☐ 0 Bud Blight (Tobacco Ringspot Virus)
- ☐ 0 Yellow Mosaic (Bean Yellow Mosaic Virus)
- ★ ☐ 0 Cowpea Mosaic (Cowpea Chlorotic Virus)
- ☐ 0 Pod Mottle (Bean Pod Mottle Virus)
- ★ ☐ 0 Seed Mottle (Soybean Mosaic Virus)

## NEMATODE DISEASES:

- Soybean Cyst Nematode (*Heterodera glycines*)
- ★ ☐ 1 Race 1 ☐ 0 Race 2 ☐ 2 Race 3 ☐ 0 Race 4 ☐ Other (Specify) \_\_\_\_\_
- ☐ 0 Lance Nematode (*Hoplolaimus Colombus*)
- ★ ☐ 0 Southern Root Knot Nematode (*Meloidogyne incognita*)
- ★ ☐ 0 Northern Root Knot Nematode (*Meloidogyne Hapla*)
- ☐ 0 Peanut Root Knot Nematode (*Meloidogyne arenaria*)
- ☐ 0 Reniform Nematode (*Rotylenchulus reniformis*)
- ☐ OTHER DISEASE NOT ON FORM (Specify): \_\_\_\_\_

## 20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ★ ☐ 1 Iron Chlorosis on Calcareous Soil
- ☐ Other (Specify) \_\_\_\_\_

## 21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ☐ 0 Mexican Bean Beetle (*Epilachna varivestis*)
- ☐ 0 Potato Leaf Hopper (*Empoasca fabae*)
- ☐ Other (Specify) \_\_\_\_\_

## 22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	Faribault	Seed Coat Luster	Faribault
Leaf Shape	Faribault	Seed Size	Parker
Leaf Color	Faribault	Seed Shape	Parker
Leaf Size	Faribault	Seedling Pigmentation	Parker

800000

9600057

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEEDS	NO. SEEDS/ POD
				CM Width	CM Length	% Protein	% Oil		
Freeborn Submitted		130	74	8.9	11.8	40.7	19.8	18.0	2.3
Faribault Name of Similar Variety		131	76	8.6	12.5	38.9	20.0	13.9	2.5

PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A<sub>2</sub> in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.

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USDA-AMS-PVPO

## Exhibit E

## Statement of the Basis of Ownership

The Minnesota Agricultural Experiment Station is the owner of Freeborn soybean. The Minnesota Agricultural Experiment Station of the University of Minnesota is the employer of the breeder who developed Freeborn.